

CRUISE REPORT

Southeast Fishery-Independent Survey (SEFIS)

R/V *Savannah* Cruise SH-11-19
24 June – 1 July, 2011
Total Number of Sea Days - 8

U.S. Department of Commerce
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Southeast Fisheries Science Center
Beaufort Laboratory
101 Pivers Island Rd.
Beaufort, NC 28516

80 camera-trap deployments
14 CTD casts

INTRODUCTION

The R/V *Savannah* departed Savannah, GA, on 24 June 2011 for the Southeast Fishery-Independent Survey (SEFIS) sampling in continental shelf and shelf-break waters off the southeastern US. SEFIS was created by the National Marine Fisheries Service in 2010 and is run out of the Beaufort Laboratory. This survey conducts applied fishery-independent sampling and related research focusing on the assessment of spatial variability in distribution and abundance of red snapper and other reef species within the snapper-grouper complex, via data collected from fish traps, video cameras, and acoustics. During this survey, chevron trap catches and associated underwater video recordings were collected from randomly selected stations on known hardbottom habitats between 27° 13 and 29° 44 N. A total of 80 stations were sampled with camera-trap gear over 8 sea days between 23 and 64 meter depths.

OBJECTIVES

1. Increase the spatial footprint and sample size of fishery-independent sampling in US southeast waters. Baited chevron traps, most of which had one or more mounted high-definition video cameras, were utilized for hardbottom reef fish community assessments and collection of reef fish for biological samples (i.e., otoliths and gonads).
2. Use video cameras on chevron traps to address trap selectivity issues, locate and describe hardbottom habitats, and provide an additional index of abundance for stock assessments.
3. Use a CTD instrument package to collect environmental data (temperature, salinity, dissolved oxygen, and turbidity) at camera-trap sampling locations.

METHODS

Camera-Trap Sampling

Camera-trap gear consisted of two high definition video cameras mounted to a chevron fish trap. Chevron traps were constructed out of plastic-coated wire mesh. A Canon camera (model HF S200) was attached above the mouth of the trap, and a GoPro[®] camera (model HD Hero) was attached above the nose of the trap (Figure 1). Traps were baited with Atlantic menhaden, *Brevoortia tyrannus*, and video cameras were set to record before deployment. Camera-traps were deployed at randomly selected stations at least 200 meters apart on suspected or known hardbottom habitats, and left to soak for approximately 90 minutes. Camera-traps were most often deployed in sets of six. A CTD cast (see environmental data collection) was conducted during the 90-minute soak time for each trap set. Fish catches were processed after trap retrieval. All fish were counted, weighed, and measured to the nearest millimeter. Individuals of select species (e.g., species in the snapper-grouper complex) were further processed for additional lengths and biological samples (otoliths, gonads, and DNA). Video files were downloaded and backed up on media storage devices. Biological samples and video files were brought to the Beaufort laboratory for further processing and analysis.

Environmental Data Collection

Environmental data were collected with a Seabird “Conductivity, Temperature and Depth” instrument package (CTD; model SBE 25) and Scientific Computer System software (SCS). CTD casts were conducted near the middle of each camera-trap soak period; instruments were lowered to within 2 meters of the bottom. Numerous water profile measurements were collected, including temperature (°C), salinity (parts per thousand), dissolved oxygen (mg/L), and turbidity (% transmission). CTD data were archived for further processing at the Beaufort laboratory. SCS software (version 4.2.3) was used to collect specific information for each fishing and CTD event, including soak time/cast duration as well as start and end latitude, longitude, and depth (m).

SURVEY RESULTS

Camera-Trap Sampling

80 stations were sampled with camera-trap gear (Table 1, Figure 2). From these traps, 17 taxa were collected and worked up for length frequency data.

Environmental Data Collection

14 CTD casts were conducted during the cruise (Table 1, Figure 2). CTD data will be processed back at the lab using Seabird SBE Data Processing software (version 7.2), and archived in a database at the NMFS–Beaufort Laboratory for future analysis.

Table 1. Summary of station coordinates, depth, date and time for each fishing event (camera-trap, Gear=324) and CTD cast (Gear=298) conducted on the SH-11-19 survey. Times were recorded in Coordinated Universal Time (UTC).

Collection Number	Gear	Date	Time (UTC)	Latitude	Longitude	Depth (m)
113153	324	06/25/2011	16:59:57	27.23	-80.05	23
113154	324	06/25/2011	17:04:46	27.23	-80.05	23
113155	324	06/25/2011	17:11:48	27.23	-80.05	24
113156	298	06/25/2011	17:29:55	27.23	-80.05	26
113157	324	06/25/2011	20:33:06	27.34	-80.07	26
113158	324	06/25/2011	20:36:33	27.34	-80.07	25
113159	324	06/25/2011	20:43:47	27.33	-80.07	24
113160	324	06/25/2011	20:50:32	27.33	-80.07	24
113161	324	06/25/2011	20:55:26	27.33	-80.07	24
113162	324	06/25/2011	21:04:16	27.33	-80.07	24
113163	298	06/25/2011	21:19:33	27.34	-80.07	24
113164	324	06/26/2011	13:07:01	27.47	-80.07	23
113165	324	06/26/2011	13:18:19	27.46	-80.07	24
113166	324	06/26/2011	13:29:04	27.45	-80.07	25
113167	324	06/26/2011	13:39:09	27.44	-80.07	25
113168	324	06/26/2011	13:48:56	27.44	-80.07	24
113169	324	06/26/2011	13:56:19	27.43	-80.07	24
113170	298	06/26/2011	14:05:19	27.44	-80.06	26
113171	324	06/26/2011	17:49:36	27.71	-80.12	26
113172	324	06/26/2011	18:00:19	27.71	-80.12	24
113173	324	06/26/2011	18:08:13	27.72	-80.12	27
113174	324	06/26/2011	18:17:09	27.72	-80.13	23
113175	324	06/26/2011	18:29:01	27.74	-80.13	24
113176	324	06/26/2011	18:41:04	27.74	-80.13	24
113177	298	06/26/2011	18:52:14	27.74	-80.13	25
113178	324	06/26/2011	20:33:37	27.75	-80.13	28
113179	324	06/27/2011	11:39:54	28.53	-80.12	51
113180	324	06/27/2011	11:46:30	28.52	-80.12	51
113181	324	06/27/2011	11:55:54	28.52	-80.12	51
113182	324	06/27/2011	12:02:40	28.52	-80.12	52
113183	324	06/27/2011	12:13:48	28.51	-80.11	50
113184	324	06/27/2011	12:32:07	28.50	-80.11	54
113185	298	06/27/2011	12:50:58	28.51	-80.12	53
113186	324	06/27/2011	16:10:55	28.73	-80.14	54
113187	324	06/27/2011	16:15:52	28.73	-80.14	53
113188	324	06/27/2011	16:23:57	28.72	-80.14	53
113189	324	06/27/2011	16:33:23	28.72	-80.14	52

Collection Number	Gear	Date	Time (UTC)	Latitude	Longitude	Depth (m)
113190	324	06/27/2011	16:41:23	28.72	-80.14	52
113191	324	06/27/2011	16:53:11	28.72	-80.14	53
113192	298	06/27/2011	17:04:51	28.72	-80.13	61
113193	324	06/27/2011	19:10:37	28.72	-80.14	62
113194	324	06/27/2011	19:17:54	28.72	-80.14	53
113195	324	06/27/2011	19:28:48	28.71	-80.14	54
113196	324	06/27/2011	19:37:06	28.71	-80.14	55
113197	298	06/27/2011	19:52:05	28.72	-80.14	55
113198	324	06/28/2011	11:58:31	28.98	-80.19	52
113199	324	06/28/2011	12:05:31	28.98	-80.19	53
113200	324	06/28/2011	12:12:52	28.97	-80.19	52
113201	324	06/28/2011	12:19:08	28.97	-80.19	52
113202	324	06/28/2011	12:25:12	28.97	-80.18	53
113203	324	06/28/2011	12:32:54	28.97	-80.18	52
113204	298	06/28/2011	12:40:52	28.97	-80.19	54
113205	324	06/28/2011	14:56:32	28.96	-80.18	52
113206	324	06/28/2011	15:08:50	28.96	-80.18	52
113207	324	06/28/2011	15:14:49	28.96	-80.18	54
113208	324	06/28/2011	15:20:56	28.95	-80.18	52
113209	324	06/28/2011	15:27:48	28.95	-80.18	53
113210	324	06/28/2011	15:33:45	28.95	-80.18	52
113211	298	06/28/2011	15:50:46	28.97	-80.17	63
113212	324	06/28/2011	17:56:19	29.04	-80.20	54
113213	324	06/28/2011	18:03:48	29.03	-80.20	56
113214	324	06/28/2011	18:12:28	29.03	-80.20	54
113215	324	06/28/2011	18:21:19	29.03	-80.20	53
113216	324	06/28/2011	18:28:53	29.02	-80.19	53
113217	324	06/28/2011	18:38:24	29.02	-80.19	53
113218	298	06/28/2011	18:56:12	29.03	-80.18	64
113219	324	06/28/2011	20:35:21	29.02	-80.19	54
113220	324	06/28/2011	20:40:18	29.01	-80.19	53
113221	324	06/28/2011	20:46:01	29.01	-80.19	53
113222	324	06/28/2011	20:51:49	29.01	-80.19	54
113223	324	06/28/2011	20:58:43	29.01	-80.19	54
113224	324	06/28/2011	21:04:07	29.01	-80.19	54
113225	298	06/28/2011	21:11:43	29.01	-80.20	56
113226	324	06/29/2011	11:38:35	28.86	-80.26	43
113227	324	06/29/2011	11:45:27	28.86	-80.26	43
113228	324	06/29/2011	11:58:29	28.85	-80.26	42
113229	324	06/29/2011	12:05:53	28.85	-80.25	42
113230	324	06/29/2011	12:18:18	28.84	-80.25	43

Collection Number	Gear	Date	Time (UTC)	Latitude	Longitude	Depth (m)
113231	324	06/29/2011	12:27:34	28.84	-80.25	43
113232	298	06/29/2011	12:39:05	28.84	-80.25	42
113233	324	06/30/2011	11:27:49	29.74	-80.47	36
113234	324	06/30/2011	11:34:43	29.74	-80.47	34
113235	324	06/30/2011	11:43:33	29.74	-80.47	36
113236	324	06/30/2011	11:50:21	29.73	-80.47	36
113237	324	06/30/2011	11:58:11	29.73	-80.47	37
113238	324	06/30/2011	12:07:01	29.73	-80.47	36
113239	298	06/30/2011	12:16:04	29.73	-80.47	38
113240	324	06/30/2011	14:04:06	29.74	-80.46	36
113241	324	06/30/2011	14:11:24	29.74	-80.46	35
113242	324	06/30/2011	14:18:33	29.73	-80.46	36
113243	324	06/30/2011	14:25:32	29.73	-80.46	35
113244	324	06/30/2011	14:31:29	29.73	-80.46	36
113245	324	06/30/2011	14:37:30	29.73	-80.46	34
113246	298	06/30/2011	14:50:30	29.73	-80.45	35



Figure 1. Chevron trap with video cameras attached over the nose and mouth positions.

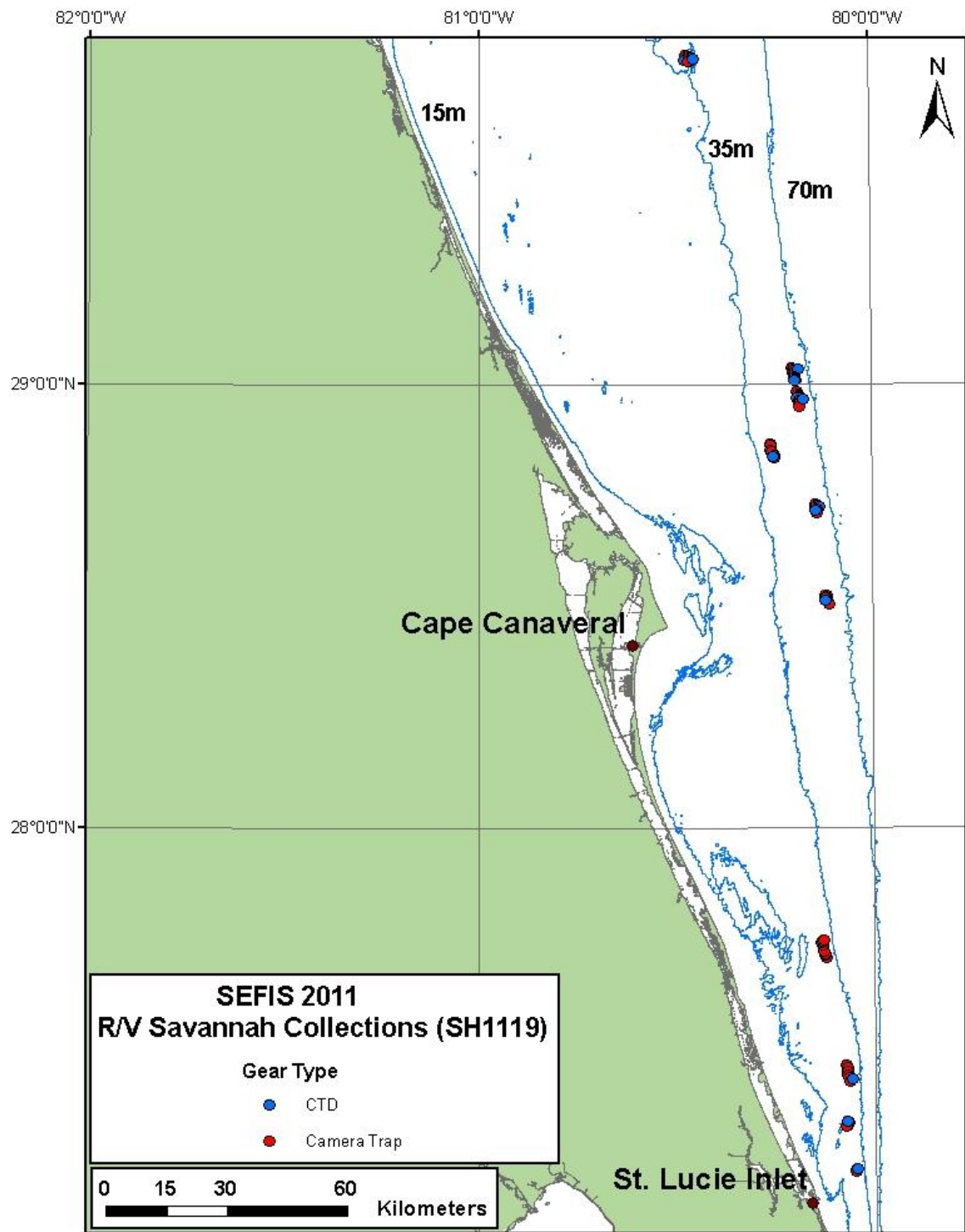


Figure 2. Locations of stations sampled with camera-trap and CTD gear on the SH-11-19 survey. Note that symbols overlap in many cases.

Cruise Report Prepared by: Nate Bacheler and Christina Schobernd

Note that the use of trade, product, industry, or firm names, products, software, or models, whether commercially available or not, is for informative purposes only and does not constitute an endorsement by the U.S. Government or the National Oceanic and Atmospheric Administration.